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In point of style, this Lecture is liable to objection. The sentences are occasionally long and involved; the constructions are sometimes harsh; and there are many compound words used, which the genius of our language forbids. But with all these drawbacks, the Lecture is highly creditable to the learning and ability of its author.

3. — 1. *An Elementary Treatise on Plane Trigonometry, with its Application to Heights and Distances, Navigation, and Surveying*. By BENJAMIN PEIRCE, A. M., University Professor of Mathematics and Natural Philosophy in Harvard University, Cambridge. Boston. James Munroe & Co. 1836. 12mo. pp. 90.
2. *First Part of an Elementary Treatise on Spherical Trigonometry*. By BENJAMIN PEIRCE, A. M., &c. &c. Boston. James Munroe & Co. 12mo. pp. 71.

THE manufacture of text-books in elementary mathematics has flourished greatly of late, at least so far as quantity is concerned. The excellent treatises of Bézout, Lacroix, Bourdon, and some other eminent French elementary writers, have been translated and re-translated, abridged, copied, compiled from, and arranged in every possible variety of method. Sometimes they appear entire, well or ill translated as the case may be. Sometimes their "*disjecta membra*" are fastened together, perhaps in decent arrangement, perhaps in the most slovenly disorder. The instructor who turns over the pages of these manufactured books, in the hope of finding some improvement in the materials or in the method of communicating knowledge, holds up his hands in amazement as he recognises one after another the same old things continually recurring, annoyed as much as was the poor Frenchman in Taylor's witty ballad, at the endless reappearances of Monsieur Tonson.

Mr. Peirce belongs to no such class of book-makers. His two works, of which we give the titles above, are part of a course of elementary mathematics, which he has given notice that he intends to publish. They show, throughout, the marks of an original thinker. In the present state of the science of Trigonometry, we cannot expect to find much that is actually new in any text-book on the subject. But in these works there is a variety and homogeneity, which shows that they are not mere compilations, but that they have passed through and been re-produced by the author's own mind. The analysis is conducted throughout in the most finished and elegant manner.

The "Plane Trigonometry" contains the demonstration of the Trigonometrical formulas, which are of most frequent use in analysis, and their application to the solution of plane triangles. The second volume contains the applications of Plane Trigonometry to Heights and Distances, Navigation and Surveying.

The Spherical Trigonometry is, with the exception of the last chapter, entirely devoted to the solution of Spherical triangles. The author first demonstrates Napier's rules for the solution of Right Triangles, and illustrates their application. Mr. Bowditch's rules for the application of Napier's invention to the solution of Oblique Spherical Triangles, which, together with the principle that the sines of the sides are proportional to the sines of the opposite angles, furnish a complete solution for all the cases except two, are next explained. The demonstration of these last rules is extremely elegant and concise. The formulas for the two remaining cases, namely, when the three sides or three angles are given, are next demonstrated. The four formulas known as Napier's Analogies, which are useful when two sides and the included angle, or two angles and the included side are known, are also exhibited.

The expediency of using Napier's rules at all, has been questioned by Delambre, whose memory was probably so correct and tenacious as to make him independent of any artificial helps. A more recent writer, Mr. De Morgan, in the article "Spherical Trigonometry" in the "Library of Useful Knowledge," page 6. says, "We do not give them because we are convinced that they only create confusion instead of assisting the memory." In a note he adds, "We carry this opinion to the extent of thinking that they have been, to many, a serious impediment to the ready knowledge of applications to plane astronomy."

We confess we are not able to see the force of Mr. De Morgan's objection, and believe it to be groundless. We think Mr. Peirce has acted wisely in making such constant use of these rules throughout his book.

The doubtful cases, which arise from the circumstance that the sine of any angle and the sine of its supplement have the same numerical value, and the same algebraical sign, are fully and satisfactorily treated.

Both these works are remarkable for brevity and simplicity (qualities which instructors will know how to prize); and we believe they will be found fully equal, if not superior, to any works now in use, for the purpose for which they were designed.
